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EXAMINER

REDDY, SATHAVARAM I

ART UNIT

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1785

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|--------------------------------------|--|
| Office Action Summary | Application No. 10/530,084 | Applicant(s) HAENEN ET AL. | |
| | Examiner SATHAVARAM I. REDDY | Art Unit 1785 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 91-97, 99-119 and 121-134 is/are pending in the application.
- 4a) Of the above claim(s) 121-134 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 91-97 and 99-119 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Examiner's Comments

1. Applicants' response filed on 7/26/2010 has been fully considered. Claims 91, 93, 101, 102, 107, 112 and 114 are amended, claims 1-90, 98 and 120 are cancelled, claims 121-134 are withdrawn and claims 91-97, 99-119 and 121-134 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 91-97, 99-101, 111, 112, 114 and 116 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (US 4,460,637) in view of Asaka et al (US 5,437,913).

Regarding claim 91, Miyamoto et al (US 4,460,637) discloses a printing sheet comprising a fibrous paper web substrate (col. 6, lines 47-54; col. 8, lines 37-48) and two image receiving layers each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27).

Miyamoto et al (US 4,460,637) discloses the teaching of having two or more ink-receiving layers (col. 5, lines 46-47) and discloses the intermediate ink-receiving layer having a pore width of 50 nm or below ("0.05 or below"; col. 6, lines 2-9) and primary particles of calcium carbonate all the particles of calcium carbonate has an average size of 0.20 μm (col. 4, lines 24-30). This layer can be duplicated to form a two layer structure having a pore width of 50 nm or below and primary particles of calcium carbonate all having an average size of 0.20 μm .

It has been held that "mere duplication of parts has no patentable significance unless a new and unexpected result is produced". Please see MPEP 2144.04 and In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). It would be obvious to duplicate the intermediate ink-receiving layer since the mere duplication of the intermediate ink-receiving layer would produce a known and unexpected result which would be high density and bright color of the image along with high ink absorption rate and a minimum of ink feathering ((col. 3, lines 35-40) of Miyamoto et al (US 4,460,637)).

In regard to the cumulative porosity volume of more than 0.006 cm^3 per gram paper, The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. the cumulative porosity volume of more than 0.006 cm^3 per gram paper would implicitly be

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achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

The printing sheet being for offset printing is an intended use limitation.

The limitation(s) "offset printing" is (an) intended use limitation(s) and is not further limiting in so far as the structure of the product is concerned. Note that "in apparatus, article, and composition claims, intended use must result in a **structural difference** between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. ***If the prior art structure is capable of performing the intended use, then it meets the claim.*** In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art." [emphasis added] *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). See MPEP § 2111.02.

Miyamoto et al (US 4,460,637) does not appear to explicitly disclose the printing sheet comprising an image receptive coating provided on both sides of the substrate.

However, Asaka et al (US 5,437,913) discloses the printing sheet comprising an image receptive coating provided on both sides of the substrate (col. 6, lines 12-24).

Regarding claim 92, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have the cumulative porosity volume of pore widths below 200 nm to be more than 0.008 cm^3 per gram paper.

Regarding claim 93, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have the surface of the image receiving coating to be non-polar.

Regarding claim 94, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving

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layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have the polar part of the surface energy of the surface of the image receiving coating be less than 7 mN/m when measured by contact angle measurements at a Parker Print Surf (PPS) surface roughness of between 0.8 and 1 μm .

Regarding claim 95, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have the polar part of the surface energy of the surface of the image receiving coating be more than 4 mN/m.

Regarding claim 96, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15;

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col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have the gloss of the surface of the image receiving coating be more than 75% according to TAPPI 75deg.

Regarding claim 97, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have the gloss of the surface of the image receiving coating be more than 50% according to DIN 75deg.

Regarding claim 99, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have a specific volume of more than 0.8 cm^3/g .

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Regarding claim 100, it is given that Miyamoto et al (US 4,460,637) disclosing a printing sheet comprising a substrate (col. 8, lines 37-48) and two image receiving layers with pore widths below 200 nm disposed thereon each comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts in dry weight of binder and 0 parts in dry weight of additives (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) would be known to have an ink set-off of less than 0.3 at 30 seconds.

Regarding claim 101, Miyamoto et al (US 4,460,637) discloses a printing sheet where the top image receiving layer comprises a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts of fine particulate kaolin and 0 parts of another fine particulate (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27).

Regarding claim 111, Miyamoto et al (US 4,460,637) discloses a printing sheet where the second image receiving layer comprises a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts of fine particulate kaolin and 0 parts of another fine particulate (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27).

Regarding claim 114, Miyamoto et al (US 4,460,637) discloses the printing sheet where the binder part of the second layer comprises a binder of starch (col. 6, line 64 – col. 7, line 26) and additives (col. 7, lines 27-31).

Regarding claim 116, Miyamoto et al (US 4,460,637) discloses the printing sheet comprising 2 to 50 parts in dry weight of the binder present in the binder part (col. 6, line 64 – col. 7, line 26).

Miyamoto et al (US 4,460,637) and the claims differ in that binder part does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Miyamoto et al (US 4,460,637) overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference in order to have sufficient fixing of the pigment in the image receiving coating ((col. 7, lines 18-26) of Miyamoto et al (US 4,460,637)), particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

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Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) are analogous art because they are from the same field of printing sheets.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) before him or her, to modify the printing sheet of Miyamoto et al (US 4,460,637) to include the image receptive coating provided on both sides of the substrate of Asaka et al (US 5,437,913) in that having an image receptive coating provided on both sides of the substrate provides high surface resistivity ((col. 6, lines 36-42) of Asaka et al (US 5,437,913)).

4. Claims 102-104, 107, 109, 112 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) in view of Desie et al (US 5,418,078).

Regarding claim 102, Miyamoto et al (US 4,460,637) discloses a printing sheet having a top image receiving layer comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27).

Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising dry weight of fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate.

However, Desie et al (US 5,418,078) discloses the printing sheet comprising dry weight of a fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate (col. 5, line 49 – col. 6, line 15).

In regard to the dry weight of a fine particulate kaolin, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the dry weight of a fine particulate kaolin to 10 to 40 parts by weight in order to have waterfastness and non-blocking characteristics (col. 5, lines 22-24) for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05(b)].

In regard to the dry weight of a solid particulate polymer pigment of polymethylmethacrylate, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the dry weight of a solid particulate polymer pigment of polymethylmethacrylate to 10 to 15 parts by weight in order to have waterfastness and non-blocking characteristics (col. 5, lines 22-24) for the intended

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application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05(b)].

Regarding claim 103, Miyamoto et al (US 4,460,637) discloses the printing sheet comprising solid particulate polymer pigment of melamine resin (col. 6, line 64 – col. 7, line 26).

Regarding claim 104, Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising dry weight of fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate.

However, Desie et al (US 5,418,078) discloses the printing sheet comprising dry weight of a fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate (col. 5, line 49 – col. 6, line 15).

In regard to the dry weight of a solid particulate polymer pigment of polymethylmethacrylate, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the dry weight of a solid particulate polymer pigment of polymethylmethacrylate to 10 to 15 parts by weight in order to have waterfastness and non-blocking characteristics (col. 5, lines 22-24) for the intended

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application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05(b)].

Regarding claim 107, Miyamoto et al (US 4,460,637) discloses the printing sheet where the binder part of the second layer comprises a binder of starch (col. 6, line 64 – col. 7, line 26) and additives (col. 7, lines 27-31).

Regarding claim 109, Miyamoto et al (US 4,460,637) discloses the printing sheet comprising 2 to 50 parts in dry weight of the binder present in the binder part (col. 6, line 64 – col. 7, line 26).

Miyamoto et al (US 4,460,637) and the claims differ in that binder part does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Miyamoto et al (US 4,460,637) overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference in order to have sufficient fixing of the pigment in the

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image receiving coating ((col. 7, lines 18-26) of Miyamoto et al (US 4,460,637)), particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding claim 112, Miyamoto et al (US 4,460,637) discloses a printing sheet where the second image receiving layer comprises a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts of fine particulate kaolin and 0 parts of another fine particulate (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27).

Regarding claim 113, Miyamoto et al (US 4,460,637) discloses a printing sheet having a top image receiving layer comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27).

Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising dry weight of fine particulate kaolin.

However, Desie et al (US 5,418,078) discloses the printing sheet comprising dry weight of fine particulate kaolin (col. 5, line 49 – col. 6, line 15).

In regard to the dry weight of a fine particulate kaolin, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the dry weight of a fine particulate kaolin to 10 to 40 parts by weight in order to have waterfastness and non-blocking characteristics (col. 5, lines 22-24) for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) [MPEP 2144.05(b)].

Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Desie et al (US 5,418,078) are analogous art because they are from the same field of printing sheets.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Desie et al (US 5,418,078) before him or her, to modify the printing sheet of Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) to include the kaolin and polymethylmethacrylate of Desie et al (US 5,418,078) in that having dry weight of a fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate provides an image receiving coating with waterfastness and non-blocking characteristics ((col. 5, lines 22-24) of Desie et al (US 5,418,078)).

5. Claims 105 and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Desie et al (US 5,418,078) in view of Le-Khac (US 4,408,010).

Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Desie et al (US 5,418,078) are relied upon as described above.

Regarding claims 105 and 106, Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Desie et al (US 5,418,078) do not appear to explicitly disclose the printing sheet comprising a solid particulate polymer pigment of a styrene malimide copolymeric latex with a glass transition temperature in the range of 200 °C.

However, Le-Khac (US 4,408,010) discloses the printing sheet comprising a solid particulate polymer pigment of a styrene malimide copolymeric latex with a glass transition temperature in the range of 200 °C (col. 3, lines 34-39).

Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078) and Le-Khac (US 4,408,010) are analogous art because they are from the same field of printing sheets.

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At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078) and Le-Khac (US 4,408,010) before him or her, to modify the printing sheet of Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Desie et al (US 5,418,078) to include the styrene malimide copolymeric latex of Le-Khac (US 4,408,010) in that a styrene malimide copolymeric latex with a glass transition temperature in the range of 200 °C provides improved heat resistant properties ((col. 1, lines 3-6) of Le-Khac (US 4,408,010)).

6. Claims 108 and 115 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078) and Le-Khac (US 4,408,010) in view of Uytterhoeven et al (US 5,418,110).

Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078) and Le-Khac (US 4,408,010) are relied upon as described above.

Regarding claims 108 and 115, Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078) and Le-Khac (US 4,408,010) do not appear to explicitly disclose the printing sheet comprising a binder of an acrylic ester copolymer of butylacrylate, styrene and acrylonitrile.

However, Uytterhoeven et al (US 5,418,110) discloses the printing sheet comprising a binder of an acrylic ester copolymer of butylacrylate, styrene and acrylonitrile (col. 3, line 65-col. 4, line 16).

Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078), Le-Khac (US 4,408,010) and Uytterhoeven et al (US 5,418,110) are analogous art because they are from the same field of printing sheets.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078), Le-Khac (US 4,408,010) and Uytterhoeven et al (US 5,418,110) before him or her, to modify the printing sheet of Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913), Desie et al (US 5,418,078) and Le-Khac (US 4,408,010) to include the acrylic ester copolymer of butylacrylate, styrene and acrylonitrile of Uytterhoeven et al (US 5,418,110) in that having a copolymer of butylacrylate, styrene and acrylonitrile provides improved film forming properties and as well a hard layer being yielded ((col. 3, line 65-col. 4, line 16) of Uytterhoeven et al (US 5,418,110)).

7. Claims 110 and 117-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) in view of Liu et al (EP 0 803 374).

Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) are relied upon as described above.

Regarding claim 110, Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising the top layer having a total dried coat weight in the range of 3 to 25 g/m³.

However, Liu et al (EP 0 803 374) discloses the printing sheet comprising the top layer having a total dried coat weight in the range of 1 to 100 g/m³ (pg. 7, lines 20-26). The coating can be applied two or more times to produce two or more image-receiving coatings.

Liu et al (EP 0 803 374) and the claims differ in that total dried coat weight does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Liu et al (EP 0 803 374) overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the

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prior art reference in order to have high color density, brightness and clarity ((pg. 2, lines 26-28) of Liu et al (EP 0 803 374)) particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding claim 117, Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising the second layer having a total dried coat weight in the range of 3 to 25 g/m³.

However, Liu et al (EP 0 803 374) discloses the printing sheet comprising the second layer having a total dried coat weight in the range of 1 to 100 g/m³ (pg. 7, lines 20-26). The coating can be applied two or more times to produce two or more image-receiving coatings.

Liu et al (EP 0 803 374) and the claims differ in that total dried coat weight does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Liu et al (EP 0 803 374) overlap the instantly claimed proportions

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and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference in order to have high color density, brightness and clarity ((pg. 2, lines 26-28) of Liu et al (EP 0 803 374)) particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding claim 118, Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) discloses a printing sheet with an image receiving layer comprising a pigment part of 100 parts of calcium carbonate smaller than 0.5 μm (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27) and each comprising 0 parts of fine particulate kaolin and 0 parts of another fine particulate (col. 5, line 46 – col. 6, line 15; col. 6, line 64 - col. 7, line 27)

Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising a third image receiving coating layer.

However, Liu et al (EP 0 803 374) discloses the printing sheet comprising a third image receiving coating layer (pg. 7, lines 20-26). The coating can be applied two or more times to produce two or more image-receiving coatings.

Regarding claim 119, Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) do not appear to explicitly disclose the printing sheet comprising a total weight of 90 to 400 g/m³.

However, Liu et al (EP 0 803 374) discloses the printing sheet comprising a total weight of 129.9 to 327.9 g/m³. The substrate has a coating weight of 127.9 g/m³ and each image receiving layer has a coating weight of 1 to 100 g/m³.

Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Liu et al (EP 0 803 374) are analogous art because they are from the same field of printing sheets.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Miyamoto et al (US 4,460,637), Asaka et al (US 5,437,913) and Liu et al (EP 0 803 374) before him or her, to modify the printing sheet of Miyamoto et al (US 4,460,637) and Asaka et al (US 5,437,913) to include the coating weights and third image receiving coating of Liu et al (EP 0 803 374) in that having a third image receiving coating and the required coating weights provides high color density, brightness and clarity ((pg. 2, lines 26-28) of Liu et al (EP 0 803 374)).

Response to Arguments

8. Applicant's arguments, see page 15, filed 7/26/2010, with respect to the 112 2nd rejections have been fully considered and are persuasive. The 112 2nd rejections of claims 93 and 101-118 have been withdrawn.

9. Applicant's arguments filed 7/26/2010 have been fully considered but they are not persuasive.

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose the use of a paper substrate and teaches away from the use of a second layer and a paper support.

The Examiner disagrees and notes that in col. 6, lines 47-59 of Miyamoto et al (US 4,460,637) it is stated that the support can be a paper support. Also, col. 5, line 46-col. 6, line 15 Miyamoto et al (US 4,460,637) discloses an ink receiving layer of a two layer structure where both layers contain calcium carbonate. In col. 6, lines 2-15 of Miyamoto et al (US 4,460,637) it is stated that a paper sheet can be used as an intermediate layer, but this is in a different embodiment of the invention of Miyamoto et al (US 4,460,637). This different embodiment does not teach away in that Miyamoto et al (US 4,460,637) discloses a discloses an ink receiving layer of a two layer structure

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where both layers contain calcium carbonate in col. 5, line 46-col. 6, line 15 and a paper support in col. 6, lines 47-59.

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose calcium carbonate in the top layer.

The Examiner disagrees and notes that in col. 5, line 46-col. 6, line 15 Miyamoto et al (US 4,460,637) discloses an ink receiving layer of a two layer structure where both layers contain calcium carbonate. Since Miyamoto et al (US 4,460,637) teaches the use of calcium carbonate as a pigment, it meets the limitation of the pigment being calcium carbonate.

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose the required particle size distribution.

The Examiner disagrees and notes that in col. 5, line 46-col. 6, line 15 Miyamoto et al (US 4,460,637) discloses an ink receiving layer of a two layer structure where both layers contain calcium carbonate where all of the calcium carbonate particles is smaller than 1 μm . It is not stated that any calcium carbonate particles is more than 1 μm .

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose calcium carbonate in the intermediate layer.

The Examiner disagrees and notes that in col. 5, line 46-col. 6, line 15 Miyamoto et al (US 4,460,637) discloses an ink receiving layer of a two layer structure where both layers contain calcium carbonate. Since Miyamoto et al (US 4,460,637) teaches the use of calcium carbonate as a pigment and the intermediate layer containing a pigment it can be seen that the intermediate layer contains a pigment of calcium carbonate.

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose the cumulative porosity volume for the coating system.

The Examiner disagrees and notes that in col. 5, line 46-col. 6, line 15 Miyamoto et al (US 4,460,637) discloses the required pore volume and in col. 6, lines 31-34 it is stated that the composite ink receiving layer structure has a pore volume of 0.05 μm .

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose the use of offset printing.

The Examiner disagrees and notes that the use of offset printing is an intended use limitation and does not carry patentable weight in regard to the structure of the printing sheet.

Applicants argue that Miyamoto et al (US 4,460,637) does not disclose a two layer coating structure on both sides of the substrate.

The Examiner disagrees and notes that Miyamoto et al (US 4,460,637) does not disclose a two layer coating structure on both sides of the substrate and that *** is a teaching reference used to teach a two layered image receptive coating provided on both sides of the substrate.

However, note that while Asaka et al (US 5,437,913) does not disclose all the features of the present claimed invention, Asaka et al (US 5,437,913) is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nieveit*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely a two layered image receptive coating provided on both sides of the substrate, and in combination with the primary reference, discloses the presently claimed invention.

Applicants argue that none of the other cited prior art references cure the deficiencies of Miyamoto et al (US 4,460,637).

The Examiner disagrees and notes that Desie et al (US 5,418,078) is a teaching reference used to teach dry weight of a fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate.

However, note that while Desie et al (US 5,418,078) does not disclose all the features of the present claimed invention, Desie et al (US 5,418,078) is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely dry weight of a fine particulate kaolin and dry weight of a solid particulate polymer pigment of polymethylmethacrylate, and in combination with the primary reference, discloses the presently claimed invention.

Le-Khac (US 4,408,010) is a teaching reference used to teach a styrene malimide copolymeric latex with a glass transition temperature in the range of 200 °C.

However, note that while Le-Khac (US 4,408,010) does not disclose all the features of the present claimed invention, Le-Khac (US 4,408,010) is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981).

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Rather this reference teaches a certain concept, namely a styrene malimide copolymeric latex with a glass transition temperature in the range of 200 °C, and in combination with the primary reference, discloses the presently claimed invention.

Uytterhoeven et al (US 5,418,110) is a teaching reference used to teach a copolymer of butylacrylate, styrene and acrylonitrile.

However, note that while Uytterhoeven et al (US 5,418,110) does not disclose all the features of the present claimed invention, Uytterhoeven et al (US 5,418,110) is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely a copolymer of butylacrylate, styrene and acrylonitrile, and in combination with the primary reference, discloses the presently claimed invention.

Liu et al (EP 0 803 374) is a teaching reference used to teach the coat weights and third image receiving coating.

However, note that while Liu et al (EP 0 803 374) does not disclose all the features of the present claimed invention, Liu et al (EP 0 803 374) is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all

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the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981).

Rather this reference teaches a certain concept, namely the coat weights and third image receiving coating, and in combination with the primary reference, discloses the presently claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SATHAVARAM I. REDDY whose telephone number is (571) 270-7061. The examiner can normally be reached on 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on (571) 272-1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Betelhem Shewareged/
Primary Examiner, Art Unit 1785

/SATHAVARAM I REDDY/
Examiner
Art Unit 1785